

Computing Corner

Specialized Workstations

This article is the second in an occasional series of stories addressing the changing role of the Applied Mathematics Department (AMD) at BNL.

Take an Iris, put it near a Ridge, add the Sun and what have you got? An idyllic scene of course — particularly to computer users at BNL.

Iris, Ridge and Sun are the names of three new specialized workstations at AMD. These computers can perform their unique functions independently, or, via an in-house network called Ethernet, in concert with each other. They are independent of the Central Scientific Computing Facility (CSCF), though files can also be sent there over networks.

Dave Stampf, head of software development projects in the Planning & Development Division of AMD, explained that "specialized workstations allow you to pick the machine that does exactly what you want it to do, without compromising." He described AMD's workstations in relation to the VAX, a type of computer used at the CSCF and other places around site where vast computing power is required. "I'm most concerned about how these things fit together and how they work with the VAXes that we have," said Stampf. These workstations do not attempt to imitate VAXes; they specialize.

The Ridge, for example, "is extraordinarily good at calculating with numbers," Stampf said. "It produces no beautiful pictures, but it can do arithmetic as fast as or faster than a VAX."

The Sun has less computing power, but offers a black and white screen with four times the detail of an IBM personal computer (pc) terminal. The Sun's power lies in what can be put upon the screen and how it can be manipulated. Sitting at the Sun, a scientist can call upon as many as 16 different computers, from the CSCF to California, and see their programs displayed in 16 different windows on the Sun's screen. What does this mean to the scientist? Stampf explained, "In the bad old days they would bring computer cards to the CSCF and wait all day for their output. Now it still may take time to do the calculations, but they can do other things at the workstation while that's going on."

Superb color graphics is the specialty of the Iris workstation. Said Stampf, "It provides a lot of information quickly, and it beats just looking at a page of numbers and trying to figure out what those numbers mean."

As powerful as each workstation is alone, together they provide an even stronger system: A scientist can write a program at the Sun, watch through a window while it runs on the rapid Ridge, then, through another window, see the results displayed on the Iris' color screen. To find out more about these specialized workstations, call Stampf, Ext. 4148.

Stampf is also working on a project that would transform pcs into workstations, by letting them run three different operating systems, so a scientist wouldn't need to jump from one machine to another to have the best system for the job. Stampf is starting with the new IBM AT, which comes equipped with the Disk Operating System. When his adaptations are complete, the AT will also be capable of running a good version of Unix, so



As they learn how to use the Instaview workstation, Plant Engineering (PE) personnel are building a file of site information. Surveyor Jim DeSantis created this plan of the National Synchrotron Light Source (725) and the firehouse (99) using the key file on the board in front of the screen. Looking at another overlay are DeSantis (left) and Peter Boyle, an architect in PE who also uses the Instaview in his work.

it will look like the VAX, the Sun, and other workstations around, as well as Smalltalk, from which the MacIntosh operating system was developed. Overall, Stampf said, "We are trying

to see where people are going to be in three years — to stay ahead of things."

Programmer Analyst Elizabeth Symonds, on the other hand, is concerned with specialized workstations



The four windows on the Sun's screen display programs that were chosen by Senior Computer Scientist Graham Campbell to demonstrate some of the workstation's capabilities: (clockwise from top right) a file directory; a graphic that rotates to show about 24 different views of the earth; a series of bouncing cubes that at times fills the entire window; and spheres, shaded to show their curvatures.

that are already being widely used at BNL. Called Instaviews, their specialty is the field of computer-aided design and manufacture, or CAD/ (Continued on page 3)

Magnet R&D for the SSC

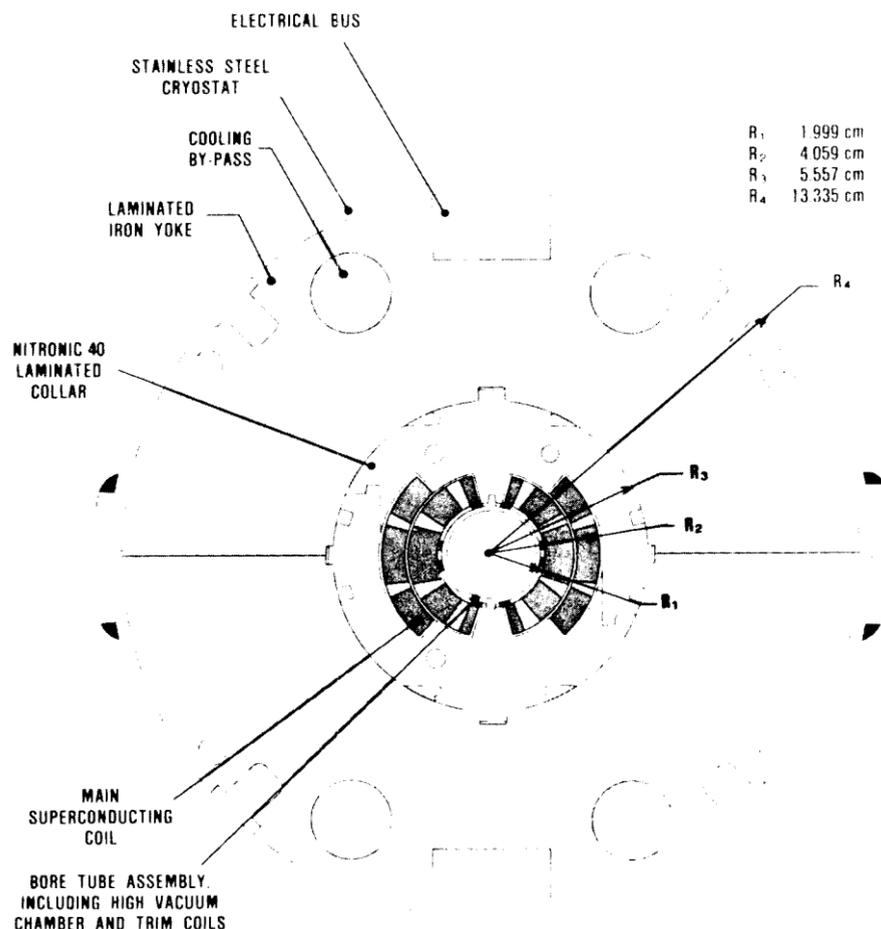
Technology wasn't developed in a day, you see.

Sometimes it takes five, 10, 20 years or even lifetimes and generations to come up with the right formula.

Frustrating — perhaps. Nevertheless, scientists do not stop pursuing the possibility of discovering what is at the heart of matter. But before the discovery, there's a lot of research and development that must take place. For instance, take the proposed Superconducting Super Collider (SSC), a 20 trillion electron volt proton accelerator, a focal point of the high-energy physics community. Currently, three laboratories — Brookhaven, Lawrence Berkeley (LBL), and Fermilab — are working together on a high-field magnet design for the SSC, while physicists at the Texas Accelerator Center are exploring a low-field design. At the end of this fiscal year, the SSC's R&D management group, with the advice of several *ad hoc* committees, will decide which magnet to adopt for the SSC.

The BNL/LBL/Fermilab collaboration has thus far produced a two-layer coil magnet design to be held in place with a stainless steel collar, a cold iron yoke, and a realization that their philosophies are really very similar. Last week, the first 4.5-meter magnet, which uses a new high-current density niobium titanium superconductor (not, as reported in the 6/21 Bulletin, niobium tin), was successfully tested at BNL.

While scientists and administrators



A cross-section of the proposed SSC magnet. Some of its features are: the high-vacuum chamber where the protons travel through the center of the magnet; it is surrounded by two layers of superconducting coil; that is held in place by two interlocking, laminated stainless steel collars. The large, dark region is the cold iron yoke, and everything is held together by a stainless steel outer wall. The helium passes through the four cooling by-pass channels in the yoke, as well as smaller channels closer to the coil. The magnet has a radius (R₄) of about 13 cm; the inner coil radius is about 2 cm (R₁).

(Continued on page 2)



Alex Rubin

At the X-19A beam line of the NSLS are (center) Mark Rivers and (left) Steve Sutton of the University of Chicago-BNL geochemistry project, (standing, center) Romano Rinaldi of the University of Modena, Italy, and (seated, right) Sid Halsor of Michigan Technological University.

Looking for Traces

Thirty-six university faculty and graduate students learned how to use BNL's 3.5 MeV Van de Graaff accelerator and the National Synchrotron Light Source (NSLS) to measure trace elements in geological samples during a "Workshop on Trace Element Geochemistry with Particle and Photon Beams." The workshop ran from June 24 through 28 and was offered by the Atomic & Applied Sciences Division of the Department of Applied Science and the University of Chicago.

The participants measured trace elements such as selenium, gallium and cesium in samples such as ore minerals, meteorites and radioactive waste, respectively. They used the proton beam of the 3.5-MeV Van de Graaff, producing nuclear reactions that determined the concentration of elements such as lithium, boron and fluorine. Heavier trace elements emitted characteristic x rays when exposed to the proton beam, thus permitting elemental concentrations to be measured.

Trace elements irradiated with x rays from the Light Source also produced characteristic x rays. However, the elemental analyses from the NSLS had better sensitivity and spatial resolution than those from the proton beam. The workshop was funded by the Department of Energy and National Science Foundation.

Sunday Tours Begin

Brookhaven's summer Sunday tour program gets under way this Sunday, July 14. A special feature this summer will be tours of the Danish House, recently erected on site as part of an ongoing study of energy efficient houses. The house has been furnished with Danish products.

In addition to touring the Danish House, visitors can also take in an audiovisual presentation that tells the story of Brookhaven, catch a bus for a guided ride around the Lab site, and stroll through the Exhibit Center, a science museum located in the three-story building that originally housed the world's first nuclear reactor built for peacetime research.

The tour season will run from July 14 through August 25, Sundays only. The tours are free and no reservations are required. They run continuously between 10 a.m. and 3 p.m., and the complete program takes about two-and-a-half hours. Refreshments are available, and a souvenir shop is located at the Exhibit Center.

Arrivals & Departures

Arrivals

Luiz A. Arrieta DNE
David Lissauer Physics
Lynn E. Maelia Biology
Walter Milouski Central Shops
David J. Schlyer Chemistry
Eliahu Stern DAS
Michiko Tanaka Physics
Lawrence Vogt AGS

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:

Sadayuki Ban Biology
Josephine R. Candiano App. Math
Joyce J. Crews App. Math
Veronica J. Jesaitis App. Math
Andrew Kevey Physics
Kazuo Kubota Medical
David K. Liu Chemistry
Arnold J. Losi Plant Eng.
Maria G.V. Rosenthal DAS
Vance L. Sailor DNE
Joseph M. Scheliga Physics
Dorothea A. Tapp Fiscal
Gene O. Uneberg NSLS
Frederic W. VanDervoort Physics
Bruce W. Wieland Chemistry

Magnets

(Continued)

attend to their work, the actual assembly of the magnets is done by groups of technicians. One group, the 13-member magnet assembly group headed by Bob Kehl, has been painstakingly attending to the details of the assembly. Their work includes a lot of trial and error, but their experience in magnet assembly over four magnet development projects has been helpful in smoothing the process. Kehl says they've also "learned a great deal" from the assembly of the first trial magnet they completed for the SSC project.

Last fall, before it was mutually decided to consolidate the laboratories' efforts, BNL, LBL, Fermilab and other laboratories were following several different approaches. Since then the three-Lab collaboration has produced pleasing results.

The next step in the process will be to produce three more 4.5 m magnets by the end of the summer, test them and determine how well their fields may be reproduced. Full-length magnets will be built and tested sometime next spring.

Optimistically and yes, realistically, the physicists look forward to tackling the SSC project. "Superconducting accelerator magnets," says physicist Per Dahl, "have reached a point now where we certainly know how to build them — the technology is there ...of course, we'll always be marching forward and coming up with state-of-the-art, higher field magnets, too."

— Maurice DuBois Jr.

Upton Nursery School will be opening its doors for the 1985-86 school year in September. It is a non-profit, cooperative pre-school for three- and four-year-old children of BNL employees and their families. Classes are run by certified teachers with parent assistance. For a modest fee, qualified teacher assistants take the place of parents who cannot participate in the classroom. For enrollment forms and further info, call Joan Rice at 924-8880.

Bowling May Be Right Up Your Alley

The Lab is made up of two kinds of people: bowlers and non-bowlers. Non-bowlers are wondering why we're talking about bowling in July. Bowlers know it's time to form teams for the upcoming season.

Perhaps some non-bowlers can be persuaded to become bowlers if they get the flavor of the bowling alley. Picture yourself in the men's or women's league on Tuesday nights in Port Jefferson, or bowling in the mixed league at Shirley on Thursdays. Only two types of equipment are mandatory — a bowling ball and bowling shoes — but you might want additional paraphernalia, like a rosin bag, a wrist brace, a lucky towel or shirt.

Ten minutes after warmups begin, a silence falls that is broken only when a bowler throws out the first ball of the evening. Then the volume rises with the sounds of bowling: balls rolling at various speeds down oiled, wooden alleys, then crashing against the pins or thumping into the gutter; a team's roar of approval when all ten pins dance in a strike, its collective groan when a ball comes too close to miss, but misses; the tense quiet as a bowler adds to a string of strikes (even the computers in Shirley go on hold and won't add up the score until the string is broken); the claps and slaps provoked when a difficult spare is made; a background din of friends chattering, conversation sprinkled with phrases like "nice try" and "good wood."

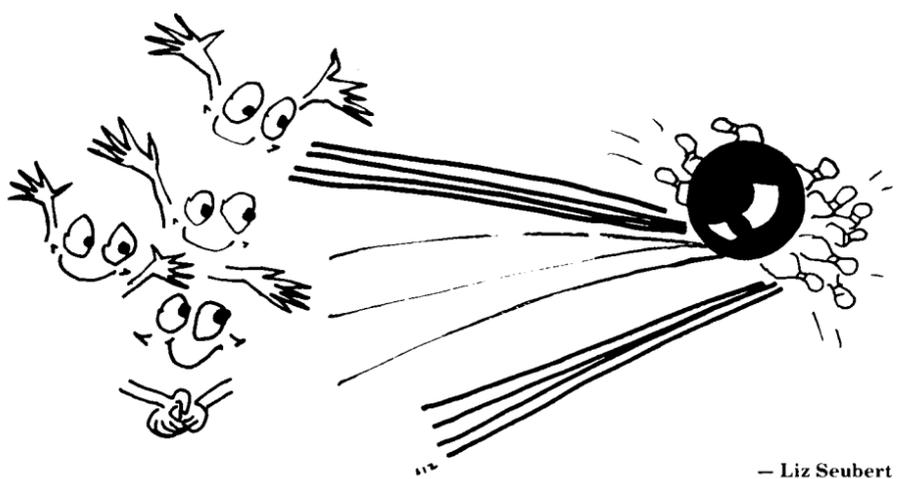
And there are the sights of bowling:

the awkward approach of a novice and the graceful glide of a seasoned bowler; the way the ball skims down the alley, sometimes teetering on the brink of the gutter then veering with amazing accuracy into the pocket, sometimes right on course until the very last moment; the triumphant expression of a bowler who has made a strike, the disgusted countenance of one who has missed several spares in a row, the surprised look of the bowler who thought she missed, but turned around to find she didn't.

But mostly, bowling is people — people like those who run the BERA Bowling League: Board officers — President Ed Sperry IV, Vice President Rich Scheidet, Treasurer Mark Israel and Secretary Renie Rosati; and league secretaries Maria Apelskog, Lee Barberich, Charlie Bohnenblusch and Kathy Griffin.

Scheidet (PE) has bowled in the men's and mixed leagues for many years, while Israel (Fiscal), Rosati (Bio.) and Barberich bowl in the men's, women's and mixed leagues, respectively. They all enjoy the social side of bowling and feel that meeting different people from the Lab gives them a better understanding of the research being carried out by the various departments.

Last year, Sperry (HEF) bowled both on a regular team in the men's league and as a substitute in the mixed league. This arrangement let him work on improving his personal game in the men's league while meet-



— Liz Seubert

ing new people by bowling with different teams in the mixed league.

All BNL leagues feature an 80% handicap; i.e., for scoring purposes only, scores are increased by 80% of the difference between the earned score and 200. A men's league bowler like Bohnenblusch (AGS), who has a 166 average, gets a handicap of 27, for a total score of 193; a 135 bowler like Apelskog (TID), who bowls in the women's and mixed leagues, gets a handicap of 52, for a total score of 187. Apelskog likes this because "it gives a benefit to better bowlers and incentive to lower bowlers." Bohnenblusch says, "This makes it a nice sport for both established and amateur bowlers. Physical ability and age have nothing to do with it."

Bowling appeals to Griffin (Bio.)

because, "It's a challenge to develop the mental concentration that's necessary to do it well. It's just me versus the pins. There's no one else to blame for my success or failure."

So...isn't it time to dust off your bowling ball and prepare to bowl 'em over at the lanes? If you need more information, or if you're interested in forming a new team, joining an existing one or simply subbing, call Apelskog, Ext. 3138; Bohnenblusch, Ext. 4758; Scheidet, Ext. 5284; or Sperry, Ext. 2697. Priority applications for bowling next season will be sent to last year's team captains and must be returned by July 31. New teams will be considered after that, when the number of openings are known. Applications are available at the BERA Sales Office.

— Anita Cohen

BROOKHAVEN BULLETIN

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Workstations (Cont'd)

CAM. At BNL, said Symonds, "The system is being used for quite varied disciplines — printed circuit design, mechanical design, architectural mapping. They are doing some fantastic things with it."

The Lab's six Instaviews are part of a sophisticated graphics design system, the CDS4000, which was installed in March. The three-dimensional workstations with color graphics were purchased by the departments that house them: The Light Source has two; the AGS, Plant Engineering and the Accelerator Development Branch each have one. One is also available in AMD for general use.

Users of the Instaviews must be familiar with an operating system called CADD4X. AMD's Ted Daniels has been in charge of a training program, in operation since early this year, whereby Lab personnel are trained in CADD4X at SUNY at Farmingdale. "A person can learn CADD4X and be productive in a very short period of time," said Symonds. This is already evident around site.

To use CADD4X, a designer can sit at a board fitted with a key file, or overlay, for the appropriate discipline, then use a light pen to point out a design element on the overlay and see it added in color to the terminal. Or a keyboard can be used to enter information relevant to the design. A drawing can be enlarged, rotated, highlighted and zoomed in on, so the designer can see the product of his or her imagination every step of the way.

CAD/CAM is also being done on about 30 pcs around site, using a program called Autocad. Communications are now being developed that would allow work being done on pcs to be transferred to the CDS4000 system for expansion and refinement. Other plans include obtaining more Instaview workstations, continuing to train users and establishing a standard parts library, where parts designed at BNL could be stored for future use by others.

In addition to the Instaviews, other specialized workstations are showing up at BNL outside of AMD. Of particular note are the six Apollo units destined for the control room of the Alternating Gradient Synchrotron (AGS). These workstations are being developed to control operation of the upcoming transfer line between the AGS and the Tandem Van de Graaff accelerator. "Besides the availability of tabletop computing," said Computer Analyst Dennis Weygand, "workstations are valuable because they can be networked together. And networking is the Apollos' specialty. Their linking is totally transparent — when you work at any machine you have complete access to the whole system, which is critical for control room operations." — Anita Cohen

Safety Shoes

The on-site Safety Shoe attendant will be on vacation the weeks of July 22 and July 29 and there will be no safety shoe transactions for those two weeks.

BERA News

Theater Group

The next meeting of the BNL Theater Group will be on Thursday, July 25 in the North Room of the Brookhaven Center. There will be socializing (in the Tap Room) at 7:30, followed at 8 p.m. by readings from A.R. Gurneys "The Dining Room". Also, plans will be made for our next production. All are welcome.

At the June meeting the following officers were elected for the coming year:

President:	Kurt Fuchel
Vice-Pres./Treas.	Joe Skelly
Secretary:	Eric Myers
Program:	Karl Swyler
Advisory:	Penny Baggett
House:	Tom Morris
Publicity:	Jane Love

Swim Club

Now that the BNL pool has opened, the BNL Swim Club will meet there on Thursday, July 18, at 5:15 p.m. for a 1/2 mile workout. Get back into the swim of things with us.

Toshi Sugama, DAS, placed first in the 50 yard breaststroke event at a U.S. Masters Swimming meet at Queens College on Sunday, June 30. He was the first to represent the BNL Swim Club in competition — and the first to bring home a gold medal. His time, 33.34 seconds, qualified him for the 50 meter breaststroke competition at the Empire State Games, this August in Buffalo.

Upcoming Masters meets include: Hicksville, July 26-28; Bronx, August 3; and Astoria, August 10. Those who wish to compete must join U.S. Masters Swimming (\$8/year) through the BNL Swim Club. For more information, contact Marsha Belford, Ext. 3327, or Mark Catan, Ext. 5060.

Tennis

All courts will be reserved on Saturday, July 13, from 9 a.m. to noon for team tennis between BNL and Miller Place.

The draw for the annual tournament is now posted at courtside and the BERA Sales Office. Competitors can play their matches early.

Softball

Standings as of July 1

League I		
	Won	Lost
Blue Jays	5	0
Phoubars	3	2
Ravens	3	2
Six Pax	3	3
Moles	2	3
Cool 'n Gang	1	4
Scram	1	4
League II		
Titans	5	0
Dirty Sox	4	1
Lights Out	4	1
AMD	3	2
Magnuts	3	2
Faze II	2	4
Random Errors	0	5
Medical	0	6
League III		
Survivors	5	0
TNT	3	2
Farm Team	2	2
No Names	2	3
Nads	0	5
League IV		
Mole-Esters	5	1
Septembers	5	1
Who Cares	3	2
Kidz-R-Us	2	3
Turkeys	2	4
Farm Busters	0	6
League V		
Mudville Sluggers	5	1
Foul-Ups	4	2
No Feedback	3	3
Space Kadets	3	3
Simply Awesome	2	4
Underalls	1	5



BNL old timers and newcomers will relive the good ol' days of rock 'n roll at the Neutron Dance. This 1950's revival, featuring dance music of the 60's through 80's as well, will happen on Friday, July 19, from 8 p.m. to midnight at the Brookhaven Center. Tickets are \$5 and are now selling at the BERA Sales Office, Berkner Hall, and from the ticket sellers listed below. When you purchase your tickets, name your favorite dance tune — other than the Neutron Dance by the Pointer Sisters, and Dee Jay "ET" (Ed Taylor, AMD) will aim to honor all requests. Also included in the price of admission are munchies and a chance to win a door prize; at the dance, you can buy drinks and hot dogs. The Neutron Dance is being produced by Brookhaven Women in Science to benefit their Renate W. Chasman scholarship fund.

Neutron Dance Ticket Sellers

Name	Dept.	Bldg.	Ext.
Mary Phillips	DAS	Bldg. 426	Ext. 3282
Vicki McLane	DNE	197D	2902
Penny Baggett	AMD	902B	5154
Harriet Martin	TID	477A, 911C	3487, 4853
Gail Williams	DO	460	3338
Sharon Spark	AMD	515	4111
Florence O'Brien	Med.	490	2837
Bonnie Wesolowski	Chem.	555A	4301
Rae Greenberg	Phys.	510A	3743
Mary Ann Castrogivanni	S&EP	535	3898
Pat Webster	HEF	911A	4628

Hospitality News

The next Hospitality committee get-together will be on July 30. This will take the place of the usual August coffee morning.

Bring a picnic lunch and your swim suit to Gillian Love's home in Mount Sinai Harbor. Coffee, tea and danish will be served.

We will meet in the Brookhaven Center at 9:30 a.m. and transportation will be available for all. Mothers are responsible for their children. (If raining, we will stay at the Center.)

Specials for Summer Visitors

Roller Skating: July 18, 8 p.m. Cost \$4.50 (paid in advance) includes transportation, admission, skate rental, wine and cheese. Deadline for bus reservation is July 12.

Great Adventure: August 10, leave at 7 a.m. Cost \$25 (cash only) includes transportation, admission (six hours of fun, amusement park, safari) and breakfast, snacks and beverages. Limited seats, money due on or before July 19.

For further information and reservations, contact Renee Flack, Ext. 3316, Bldg. 460.



T-Shirts — white with blue printing. Cost \$5, cash or money order. Send to T-Shirts '85, Renee Flack, Bldg. 460.

Gym To Get Facelift

The gymnasium will be closed for renovations starting Monday, July 16. All activities will be discontinued in the gym proper and the weight/exercise rooms until further notice.

The women's and men's locker and shower rooms will not be affected.

Diners Note

The Cafeteria will be closed on Saturday, July 13. On that day, snack bar service will be available from 9:00 a.m. to 2:00 p.m. at the Brookhaven Center.

Cafeteria Menu

Week Ending July 19

Monday, July 15	
Cream of tomato soup	(cup) .65
	(bowl) .85
Ham & potato au gratin & 1 veg.	2.15
Swedish meatballs on rice	2.15
Hot Deli: Sloppy Joes	2.20
Tuesday, July 16	
French onion soup	(cup) .65
	(bowl) .85
Chicken Burrito & 1 veg. w/ hot sauce	2.15
Stuffed pepper & 1 veg.	2.20
Hot Deli: Smoked turkey breast	(bread) 2.35
	(roll) 2.55
Wednesday, July 17	
Lentil soup	(cup) .65
	(bowl) .85
Sauerbraten & potato pancake	2.30
Turkey chow mein on rice	2.15
Hot Deli: Pastrami	(bread) 2.05
	(roll) 2.25
Thursday, July 18	
Navy bean soup	(cup) .65
	(bowl) .85
Old fashioned beef stew on egg noodles	2.20
Special: Top you own Taco's	2.20
Hot Deli: Knockwurst & sauerkraut	(bread) 2.05
	(roll) 2.25
Friday, July 19	
New England clam chowder	(cup) .65
	(bowl) .85
Macaroni ham & cheese w/ 1 veg.	2.15
Seafood platter	2.35
Hot Deli: Sausage & pepper hero	2.20

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

2284. SECRETARIAL POSITION - Requires broad knowledge of Laboratory operations, procedures and policies to perform secretarial functions for Department Engineering Manager. Requires excellent secretarial, organizational and communications skills and experience in word processing. Physics Department.

2285. MAIL CLERK - (Temporary to 8/30/85). Staff Services Division.

2286. LABORER - (Temporary to 10/11/85). Plant Engineering Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2287. RESEARCH ENGINEER - Requires BSEE or equivalent and experience in solid state ac/dc conversion techniques, circuit analysis and feedback control systems. Experience in multi kilowatt range power supplies, regulation schedules, power filter techniques and/or fast pulsed power techniques and controls necessary. Alternating Gradient Synchrotron Department.

2288. TECHNICAL POSITION - Requires an AAS degree in mechanical technology or the equivalent experience. Responsibilities, under supervision, will include machining, moving, checking, assembling and aligning of heavy components. Knowledge of power and hydraulic equipment will be helpful. Physics Department.

2289. TECHNICAL POSITION - Requires a bachelor's degree or equivalent acquired through training and experience in the area of mechanical engineering and demonstrated capabilities of responsible leadership. Must be capable of making a significant contribution to the construction of a complex detector system. Working in a group environment, will be responsible for the coordination and execution of assigned functions with some latitude of decision making. These include machining, moving, checking, assembling and aligning of heavy equipment. As required, will provide technical advice and assistance to other personnel. Some knowledge of electrical and hydraulic equipment will be helpful. Physics Department.

2290. TECHNICAL POSITION - Requires an AAS degree in mechanical technology or the equivalent experience. The ability to use hand tools, some machine tools and simple electrical tools such as meters, oscilloscopes, etc. will be required. Will be working in a research group that designs, builds, debugs and operates many types of research equipment. Physics Department.

Autos & Auto Supplies

72 TRAILER - sleeps 6, bath, heater, stove, oven, very good cond., Tandem wheels, \$2,100; 73 Camaro body, good cond., \$900. Ext. 2964.

79 PINTO WAGON - roof rack, new tires, orig. owner, \$1,500. 281-9172.

77 MUSTANG GHIA - a/c, 4 spd., am/fm tape, radials, good mech. and body, \$2,500. 821-1435.

83 DATSUN 200SX - 5 spd., 2 tone silver, full power, am/fm cassette, mint, \$7,300. Ext. 7716 or 728-0334.

78 KZ400 - low mi., dealer maint., very good cond. 281-0360 after 6 p.m.

TIRES - (4) Bridgestone RD604 steel belted radials, 10R-15LT with polished alum. rims, fits 6 lug Chevy, \$400. Ext. 2951 or 924-6521.

76 PACER - new tires and muffler, 53,810 mi., excel. cond., \$800. 924-3941 after 5 p.m.

73 CHEVY CAPRICE - V8, 4 dr., a/t, p/s, p/b, am/fm, clean, runs well, new muffler and trans., \$700. Manfred, Ext. 3422 or 3190 eves.

85 MERCEDES 500SEL - loaded, low mi., metallic brown leather int. 941-4999.

80 CHEVY - orig. owner, excel. cond., best offer. 281-5532

76 COUGAR XR7 - p/s, p/w, p/b, a/c, stereo, C/B, must sell, \$1,000. Dan, Ext. 4987 or 698-7322.

84 DIRT BIKE - KTM, 125cc, street legal. Ext. 3357 or 325-9580 after 6 p.m.

81 SUZUKI - GS-1000, helmet, cover, 9,500 mi., \$1,350. Ext. 2231 or 589-8533.

81 VW VANAGON - excel. cond. Ext. 4635 or 751-2860.

82 HORIZON - TC3 Mizer, 38 mpg, new McFearson struts, very good cond., \$2,200 neg. George, 331-9572.

TRAVEL TRAILER - 15-1/2 ft., sleeps 5-6, refrig., stove, sink, bath, hitch, many extras, \$1,000. Bob, Ext. 4824, 4561 or 744-5098.

76 OLDS 350 - 4 dr., a/c, p/s, p/b, good cond., \$1,500. Kevin, 563-1189.

73 CAMPER TRAILER - double axle, full equip., sleeps 6, \$2,000. Barbara, 924-0370.

63 CHRYSLER NEWPORT - hardtop, good cond., runs well, \$500; 68 Dodge van, 3 spd., manual trans., very good, \$10; any glass for 1964-70 Dodge van, not tinted, \$10 each. Ext. 3783.

71 CHEVY IMPALA - V8, a/c, p/b, a/t, 82k mi., good cond., \$600. Ext. 2673 or 744-8632 after 6 p.m.

82 CHEVY CHEVETTE - low mi., a/c, a/t, p/s, p/b, excel. cond., must see, \$3,800. 698-7259 after 6 p.m. & weekends.

65 GMC TRUCK - V6, runs well, \$695. 929-3654 after 6 p.m.

72 COACHMAN - 24', Tandem wheel, sleeps 6, bunk house, refrig., stove, oven, hot water, ducted heat, center bath, \$3,950. 744-3284 eves.

72 DODGE DART - 4 dr., a/t, a/c, p/s, p/b, am/fm stereo, 20 mpg, good cond. Sandy, Ext. 3369 or 286-1022.

72 MGB - red, convert., 74k mi., mech. excel., needs some body work, \$1,600. Roger, 754-3286, 6-9 p.m.

79 TOYOTA CELICA GT - hatchback, a/t, 48k mi., excel. cond., \$3,800. 286-4150.

77 CIVIC - runs, needs engine rebuilt, new distrib., water pump, good tires, best offer. Ext. 5508.

77 FORD LTD - Landau, full power, 4 wheel discs, a/c, am/fm, loaded, 80k mi., \$2,100. 878-0835.

83 HONDA ATC - lights, rear rack, clean, 185-S, \$900 firm. 422-4075 after 6 p.m.

69 FORD BRONCO - 4 WD, 302 eng., 3 spd., \$1,500. 286-3623, leave message.

77 DATSUN - pickup, w/cap, new brakes, exhaust, good transp., \$1,800 neg. 744-5069.

82 VOLKSWAGON RABBIT - 4 spd., excel. cond. 924-4193 after 6 p.m.

71 NOVA - 6 cyl., 2 dr., runs, \$300 or best offer. Vera, Ext. 5064.

75 IMPALA WAGON - new carb., air shocks, high mi., reliable eng., new tires, p/b, p/s, a/c, needs charge, \$1,000 neg. Ron, Ext. 3238.

72 SAAB - excel. cond., no rust, Blaupunkt am/fm radio, \$1,200. 473-3604.

75 MONTE CARLO - new trans., bucket seats, Sony stereo, \$1,000 neg. 758-9380.

76 CHEVETTE - 4 spd., new valve job, clutch, brakes good cond., \$900. 246-8974.

STEREO - Audio Vox, am/fm cassette, \$25; 40 watt booster & equalizer, \$20; both \$40. Jon, 928-6654.

71 VW BEETLE - 4 spd., handyman's special, still runs, needs work. Ext. 3670 or 744-1760 eves.

Boats & Marine Supplies

28' OWENS - sleeps 4, stand up head, sink, stove, full canvas, engine needs freeze-out plugs, extras, \$2,400; 11' plywood row boat, needs paint. 281-0360 after 6 p.m.

SUNFISH - with trailer, green hull and sails, good cond., \$800. Jay, 286-3679.

17' PEARSON HAWK - fiberglass sails, 2.5 HP outboard, trailer, ready to sail, \$1,500. 734-5514 weekends or (212) 866-5767 weekdays.

24' GARVEY - 1975, 8' beam, planked, glassed, 70 HP Evinrude, \$1,500. 586-8431 after 6 p.m.

MOORING ANCHOR - chain, buoy & pick-up buoy, 150 lb., \$200. Sue, Ext. 2050 or 289-8988 after 5 p.m.

WINDSURFER - 1984, Hi-Fly, model 343, excel. cond., \$400. 286-1358.

17' GRADY WHITE - 1963, wood, 80 HP Evinrude, fiberglass bottom, new stern, new galv. trlr. access., needs work, \$1,650. George, 286-0641.

10' SEA SNARK - sailboat hull, fiberglass, \$60 or best offer. Ray, Ext. 3536 or 289-7615.

30' BROADWATER FWC - Crysler, DF, VHF, in water, will demo, \$2,900. Ext. 7593 or 878-0653.

18' FIBERGLASS MFG - 1965, pleasure boat, outboard gas, Joe, 369-2624.

12' ALUM. BOAT - 9.9 HP Johnson, good cond., \$500. 878-1640.

16' PENN YAN - Holsclaw trailer, \$275; 1971 Evinrude, 60 HP, for parts, \$200. 399-3712.

16' FIBERGLASS WINNER - 1971, 50 HP Johnson, trailer, \$1,200. Ext. 4846 or 363-6940.

11' ROWBOAT - plywood, needs paint, \$50 firm. 281-0360.

28' OWENS - sleeps 4, new canvas, v.g. cond., eng. needs freeze out plugs, \$2,300. 281-0360.

7' DINGHY - oars, anchor, \$125; mooring, 150 lb. mushroom w/chain, buoy, \$75. Ralph, Ext. 2368 or 928-6654.

Miscellaneous

LAWN MOWER - 21", self-propelled, mulcher, excel. cond., \$175; luggage, 5 pieces, (2) 26", (2) 24", (1) carry on, like new, \$145. Ext. 3392 or 475-8330.

CATS - Siamese kittens and adults. Whitey, Ext. 2913 or Ramona, 928-3088.

DISHWASHER - Westinghouse, under counter, new, never used, \$100; 16" window fan, 3 spd., elec., reversible, adj. panels, new, in orig. carton, cost \$49, sell for \$25. 924-3236.

AWNINGS - (4) canvas, (2) large, (2) med., size 3, Terra-cotta, (1) green, \$35. Carol, 878-0885.

AIR CONDITIONER - GE, 6k BTU, no instal. req., excel. cond., moving, \$100. Ext. 3699 or 744-1081.

FAIRING - Vetter, quicksilver, complete with mounting hardware, brand new cond., \$135. Frank, Ext. 3120.

SOFA BED - Simmons, colonial, queen sizer, \$250; brown recliner, \$50; coffee table, \$20. Ext. 4425 or 751-6781.

FENCE - chain link gate, 4' complete, good cond., \$30; add a room for van or trailer, canvas with snaps, 12' x 8', new, \$50. Dan, Ext. 4987.

TABLE - solid maple, 36 x 48, brand new, never used, \$100. Carmen, Ext. 4,135.

CAMERA - Kodak, 35 mm, model 35F, old, very good cond., \$25. Joe, Ext. 4439.

FURNITURE - bar, 3 stools, \$100; dining room set, 5 chairs, table, serving cabinet. Ady, Ext. 4531 or 331-3785.

ORGAN - Baldwin, model 2000, full pedalboard, 2 manuals, church model, \$2,000. 928-12803.

REFRIGERATOR - frost-free, stove, excel. cond., goldtone, \$100 each. Ext. 4301.

Classified Ad Policy Deadline is 4:30 p.m. Friday for publication Friday of the next week.

POOL - alum., 15' x 30', incl. through wall skimmer, filter, motor/pump, vacuum & hoses, chemicals, etc., needs liner, \$350. Walt, Ext. 2907 or 698-0576.

TOOLS - Shopsmith Mark II, complete, saw, drill-press, wood turning lathe, 12" disk sand., grind. wheel, etc., \$300. George, 286-0641.

DIAMOND RING - custom made, one of a kind setting, over 1/2 carat, \$500, neg. Donna, Ext. 2907 or Mark, 744-3298 eves.

RADIO - Panasonic, 8 band shortwave, superhet am/fm, brand new, \$125. 589-4407 5-8 p.m.

TELEXTENDER - Pentax screw mount, 2X, \$8; bar books for making drinks. Susan, Ext. 4267.

OFFICE DESK - steel, \$35. 744-9677.

APPLIANCES - refrig., stove, washer, dryer, dishwasher, all harvest gold, must sell, best offer. 758-9380.

DISHWASHER - 1973 Sears Kenmore, portable, needs minor work, \$50. 924-4193 after 6 p.m.

REFRIGERATOR - GE, side-by-side, 19 cu. ft., gold, \$100. Jim, Ext. 2432.

LYMAN 450 - bullet lub., size R, \$40. Ext. 4312.

LIGHT FIXTURES - florescent, 4' with (2) bulbs, complete units, \$10 each or (10) for \$75. Paul, 744-3807.

FLOUR MILL - goes on top of Bosch kitchen mach., w/slicer, shredder, wire whips, dough hook, blender, \$280 for all. Ext. 3107 or 4571.

PIANO - \$50. Ext. 3919 or 929-4310 eves.

AMPLIFIER - 75 W McIntosh, mono, perfect working order, \$40; JBL speakers, 15" woofer, tweeter, crossover network, perfect cond., all for \$75. Gerry, Ext. 7544.

APPLIANCES - Toaster, radio, can opener, steam/dry iron, dressmaker cutting board, training wheels, 12 piece spice rack, all \$1 each. 281-7844.

TRICYCLE - powder puff, \$10; 4 wheel cycle, \$5, good for child under 3. Chandra, 924-0582.

TV - 19" color, \$100; steel desk, 55 x 30, 6 drawers, \$50. Ext. 3079 or 3590.

DEHUMIDIFIER - excel. cond., \$50; 2" outside wood door, 6 pane glass, w/frame, \$35; Braums juice extractor, used twice, \$45; pine dresser, 6 drawers, \$25; wood desk, \$25. 751-0345.

KITCHEN TABLE - (4) chairs, very good cond. Frank, Ext. 3120.

STROLLER - 1984 Cosmos, dark blue, excel. cond., basket & body, orig. cost, \$150, sell for \$75. John, Ext. 3292 or 475-4370.

MOVING SALE - lawn mower, wheel barrow, garden tools, bricks, oak flooring. Ron, Ext. 3145.

CHANDELIER - chrome, contemporary, w/six frosted glass globes, \$50. Ext. 3589.

Free

MAYTAG WASHER - works on one cycle. Ext. 4425.

KITTEN - 5-6 weeks old, trained, female, extremely social. Hildenbrand, 929-4446.

Yard Sale

BELLPORT - 6 Gerard St., redecorating sale, couches, tables, bdrm. set, den set, plus much more. Fri. & Sat., 7/12-13, 10 a.m. to 4 p.m.

Car Pool

N. BABYLON/DEER PARK - can meet at park and ride, exit 51, L.I.E., 8 a.m., 4:30 p.m. Ext. 2957.

HOLTSVILLE - urgently need ride from Birchwood Glen Apts. (opposite IRS) to and from Lab, will share gas expenses. Jody, Ext. 2907 or 654-9094 after 6 p.m.

MASSAPEQUA - ride wanted daily thru Aug. 16, share expenses. Mary Ann, Ext. 3349 or 799-4985 after 6 p.m.

MATTITUCK - needs 4th person for on-time car pool. Carmen, Ext. 2663.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Rent

POCONOS - 3 bdrms., 2 baths, f/p, pool, tennis, golf, Lake Wallenpaupack, fishing, hiking, horseback riding, canoeing, antiquing, playhouses, Mt. Airy Lodge minutes away, quite country retreat, weekends \$250, week \$450. Rick, Ext. 7611.

MANORVILLE - new ground floor apt., 2 bdrms., l/r, d/r, eat in kitchen, 1 mi. from exit 68 LIE, heat incl., \$650 month. 589-2260.

HILTON HEAD, S.C. - condo., 2 bdrms., 2 baths, pool, tennis, golf, beach, \$400 week. 585-9149 after 4 p.m.

WADING RIVER - 1 bdrm. apt., partially furnished, avail. 8/1/85, single male preferred, all incl., \$450. 929-4877.

N. SHIRLEY - 3 bdrm. house/apt., close to Lab, \$600 month plus util. 215-861-3911 or 215-867-8064.

CORAM - No. Isle Apts., sublease, 1 bdrm., includes heat, gas, tennis, pools and clubhouse, \$525 mo. plus elec. 928-6791 after 6 p.m.

SPRINGHILL, FLORIDA - 2 bdrm. house, 40 miles north of Tampa, planned community, fully furn., weekly/monthly, reason., 90 miles to Orlando, 2 miles to Weeki Wachi. Ext. 4530 or 261-2719.

For Sale

SHOREHAM - contemporary ranch, 4 bdrms., 2 full baths, f/p, basement, gar., skylights, mint cond., owner transf., must sell, \$110,000. 744-5887.

SETAUKET - N. of 25A, 3 bdrms., 2-1/2 baths, spacious ranch on quiet cul-de sac, l/r, d/r, elk, large fam. rm, fireplace, 2 car gar., lovely back yard w/patio, close to SUNY, R/R sta., assum. mortgage, \$169,900. Ext. 4425 or 751-6781.

MAINE - 18 acres of beautifully wooded land, prop. borders on stream & pond, secluded. 878-1178.

RIDGE - 3 bdrm. ranch, 1 bath, garage, 6' stockade fence, all appliances, 5 min. from Lab. \$92.5k. Ext. 2386 or 924-0112.

CORAM - Strathmore East, W section, 10 rm. ranch, 4 bdrms., 3 full baths, fireplace, M/D, nicely landscaped, quite st., move-in cond. 928-8071.

ADIRONDACKS - waterfront property, 600', on Schroon River, 6 acres, 20 min. from Lake George, fishing, boating, swimming, terms avail., owner will hold mort., \$19,000. Ext. 3376 or 924-3674.

BAYPORT - S. of Mid. Rd., 700 ft. from Bay, 4 bdrms., 1-1/2 bath, new kit., wood floors, den/sunroom, 20x40 ingnd. pool, 3/4 acre, mint, \$186,900. 472-1182.

Wanted

HOUSE TO SIT - experienced, caring, responsible, free, any period 7/1-9/15. J. Allentuck, Ext. 2412.

INFORMATION - about the Soc. for Creative Anachronism for a medieval fest. in Dec. 286-0237 or 286-1901.

BOY SCOUT UNIF. - for new scouts, smaller sizes preferred. 744-4594.

BABY FURN. - used, crib, stroller, high chair, booster chair, reasonable. Ext. 3156 or 924-3387 after 5:30 p.m.

SMALL LOT - suitable for bldg., N. Shore west of Wading River. D. Canniff, 724-4268 after 5 p.m.

MUSICAL GROUP - bass player wants to join existing club date, top 40's band or form new group. 727-7389.

BABY STROLLER - canvas cradle type preferred, used, good cond. Sandy, Ext. 4550 or 281-0843 after 6 p.m.

DINGHY - 7-8 ft., any cond. Bill, Ext. 2906 or 929-6189.

MILLING MACH. - small, lathe, access. for same. Bill S., Ext. 3848 or 281-6498.

OUTBOARDS - outdrives, running or not, for parts, 1970 & up, for cash. Jim or Bill, 567-3417.

BICYCLE - 10 spd., racing model, must be in good cond., barbell weights, steel plates, reasonable prices. John, Ext. 3292 or Chris, 286-1348.

VOLLEYBALL FANS - people interested in attending Int'l. Volleyball Champ. in NYC, Aug. 25, group rates avail. Adrienne, 286-8424.

OVERSEAS LUGGAGE TRUNK - large size. Ext. 3107 or 4571.

HOME - for a Blue Tic Coon Hound, male, good with kids, needs lots of prop., lovable, with papers. 286-3604.

OWNERS/SERVICE MANUAL - for 78 Omni or Horizon. Bruce, Ext. 7203.

HOUSE - to rent, Bellport area, for a year, starting in Sept. 286-0925.

BABYSITTER - for 8 and 10 year old, must be avail. for some overnight stays. Harvey, Ext. 3758 or Sally 821-1726.

GIRL'S BIKE - 24". Gail, Ext. 3338.

HOUSEMATE - to share, 3 bdrms., 1.2 acres, beach rights, in Sound Beach. Kevin, Ext. 4409, 4662 or 744-6059.

ANSWERING MACHINE - good cond., best offer. Maurice, 928-6930.